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PG/HS/ZOO-202/13

M.Sc. 2nd Semester Examination, 2013

ZOOLOGY

PAPER – ZOO-202

Full Marks : 40

Time : 2 hours

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Write the answers to questions of each Group in separate books

GROUP – A

(Histophysiology and Histochemistry)

[Marks : 20]

1. Answer *two* of the following : 2 × 2

(a) What is fixation ? Name the factors responsible for fixation. 1 + 1

(Turn Over)

(2)

- (b) How formaldehyde reacts with proteins? 2
- (c) Why a mixture of fixatives is preferred than a single fixative. 2
- (d) Name the refractive media of the eye ball. Which one of them is related to glaucoma? 2
2. Answer *two* of the following : 4 × 2
- (a) Name two fluorescent labelling molecules that are used in immunohistochemistry technique. How you detect an antigen by the 'ABC' method? 1 + 3
- (b) Explain chromophore and autochrome groups in a staining molecule. 4
- (c) Write a note on Melanopsin. 4
- (d) Write notes on any *two* of the following : 2 × 2
- (i) Dye from animal origin
- (ii) Synthetic dyes
- (iii) Microwave fixation
- (iv) Chemistry of PAS-Reaction.

3. Answer *one* of the following : 8 × 1

(a) (i) What is EC number of an enzyme ?
Write the EC number of acid and alkaline phosphatase. State the principle of histochemical localization of an acid phosphatase.

(ii) Why immunological rejection is not considered in case of 'corneal transplantation' ?

(iii) Write a note on glutaraldehyde.

(1 + 1 + 2) + 2 + 2

(b) Answer the following (any *four*) questions :

2 × 4

(i) Role of Haematoxylin in Biology

(ii) Write a note on : 'PAP-test'

(iii) Non-aqueous fixatives

(iv) Mordant

(v) Role of vitamin D₃ in the skin

(vi) Metachromasia.

(4)

GROUP – B

(*Cell Biology*)

[*Marks : 20*]

4. Answer *two* of the following : 2 × 2

(a) State the role of receptor dimerization in RTK activation.

(b) What is Marfan's syndrome ?

(c) What is function of switch protein in cell signaling ?

(d) What is Osteogenesis imperfecta ?

5. Answer *two* of the following : 4 × 2

(a) Describe the structure of GPCR with suitable diagram.

(b) Provide a brief account of cell cycle inhibitors and its role in cell cycle control.

(c) Describe the mechanism of activation of protein kinase-C.

(5.)

(d) State briefly about Glucosamino-glycaus and its types in extracellular matrix.

6. Answer *one* of the following : 8 × 1

(a) (i) "Cam kinase-II act as a molecular memory device" – explain.

(ii) State the role of Src homology domains in activation of monomeric G-protein with proper diagram. 3 + 5

(b) (i) Describe the structure and function of Dynein complex in cellular transport.

(ii) State the difference between motor MAPs and non motor MAPs.

(iii) How does proteoglycans regulate the activities of secreted signaling molecules. 4 + 2 + 2